SPECIFICATION AMENDMENTS

On page 1, insert above line 1, insert--Priority Claim

The present application claims priority on European Patent Application 03104985.1 filed 29 December 2003.--

On page 1, delete title on line 1.

On page 1, above line 2, insert--Field of the Invention--

On page 1, above line 3, insert--Background of the Invention--

On page 9, delete line 7-10.

On page 12, delete line12-32.

Paragraph on line 2 of page 13 has been amended as follows:

--The present inventions include an electrochemical element with ~~according to the invention comprises~~ a cathode, an anode and an electrolyte arranged between the cathode and anode, which electrolyte comprises an ionic liquid comprising an anion and a cation, which cation comprises a pyrrolidinium ring structure; and wherein the active material of the cathode comprises an intercalation material having an upper reversible-potential-limit of at most 4 V versus Li/Li^+.--

On page 13, delete line 1-32.

On page 14, delete line 1-29.

On page 15, delete line 1-14.

Paragraph on line 15 of page 15 has been amended as follows:

--The present inventions include ~~also provides~~ a method of providing electrical energy in an underground wellbore, wherein the energy is provided by an electrochemical

element according to the invention. The underground wellbore may form part of an oil and/or gas production well or a geothermal well.--

On page 17, above line 10, please insert the following paragraphs:

--In this specification and claims ionic liquids are defined as 'ionic compounds', which are liquid in the operating temperature range. An ionic liquid may comprise a liquid mixture of ionic compounds.

When used in this specification and claims an active intercalation material is defined as an intercalation material that takes part in the redox reaction in the electrodes.

Intercalation materials with an upper reversible-potential-limit of more than 4 V versus Li/Li+ are not suitable for reversible use. It is believed that the interaction between the electrolyte and these materials cause degradation of the materials and/or electrolyte resulting in loss of capacity, especially when used at temperatures above 70 °C.

Suitable intercalation materials with an upper reversible-potential-limit of at most 4 V are for example: $LiFePO_4$, $Li_3Fe_2(PO_4)_3$, $Li_4Mn_5O_{12}$, $Li_2Mn_4O_9$, MnO_2, FeS_2, LiV_3O_8, V_2O_5, TiS_2, TiO_2, $Li_2Ti_3O_7$, $LiTi_2(PO_4)_3$, $NaTi_2(PO_4)_3$, TiP_2O_7, LiV_2O_4, $Li_4Ti_5O_{12}$, $LiCrTiO_4$, $LiTi_2O_4$, CuO, $MgMo_3O_4$, Li_3FeN_2, Li_7MnN_4.
Particularly suitable intercalation materials are $LiFePO_4$, $Li_4Mn_5O_{12}$, TiS_2, $Li_4Ti_5O_{12}$ and $LiCrTiO_4$.

It is observed that WO 01/15258 discloses a solid-state conductive material comprising a pyrrolidinium or other cation. It further discloses that an anode of a Lithium battery may comprise a Lithium intercalation material.

It is believed that a solid-state conductive material has a lower ionic conductivity than an ionic liquid. The use of an ionic liquid in the electrochemical element according to the present invention instead of a solid-state conductive material will result in a higher power density and therefore in a better performance of the electrochemical element.

As an alternative to the use of an active intercalation material the anode of an electrochemical element may comprise a conjugated polymer. International patent application WO02/063073 discloses an electrochemical element with an anode or cathode comprising a conjugated polymer as the major constituent of the active material.

The electrochemical element according to the invention may be configured for use as a primary or a rechargeable battery or an electrochemical capacitor at high

temperature, such as a temperature above 50 °C and particularly at a temperature between 60 and 150 °C.

It is furthermore preferred that the pyrrolidinium ring structure has the formula: *N*-R_1-*N*-R_2-pyrrolidinium, wherein R_1 and R_2 are alkyl groups and that R_1 is methyl and R_2 is butyl or hexyl.

The anion of the ionic liquid preferably comprises any of the following compounds:

- ClO_4^-, AsF_6^-, PF_6^-, BF_4^-, a halogen ion, $N(CF_3)_2^-$, $N(CF_3SO_2)_2^-$ ('TFSI'), $CF_3SO_3^-$, and $N(CH_3SO_2)_2^-$, $N(C_2F_5SO_2)_2^-$, $B(C_2O_4)_2^-$, $C(CF_3SO_2)_3^-$.

It is also preferred that the alkali salt comprises a Lithium salt which may comprise any of the following compounds:

- $LiN(CF_3SO_2)_2$ ('LiTFSI'), $LiCF_3SO_3$, $LiClO_4$, $LiBF_4$, $LiPF_6$, and $LiAsF_6$, $LiB(C_2O_4)_2$, $LiC(CF_3SO_2)_3$.

Alternatively the salt may comprise $MgCF_3SO_2$ or $Mg(ClO_4)_2$.

The cathode suitably comprises $Li_4Ti_5O_{12}$, $Li_{4-y}Mg_yTi_5O_{12}$ ($0 \leq y \leq 1$), $LiCrTiO_4$, V_2O_5, TiS_2, $Li_4Mn_5O_{12}$, $Li_{4-y}Mg_yMn_5O_{12}$ ($0 \leq y \leq 1$) or $Li_{1-y}M_yFePO_4$, where M=Mg, Nb, Zr, Ti or Al ($0 \leq y \leq 0.02$), as the active material and as the major constituent by mass.

The anode suitably comprises Lithium, $Li_4Ti_5O_{12}$, $Li_{4-y}Mg_yTi_5O_{12}$ ($0 \leq y \leq 1$), $LiCrTiO_4$, as the active material.--

On page 25, above line 1, insert --We claim:--